

GENERAL DESCRIPTION

LUBRICATION

1. General Description

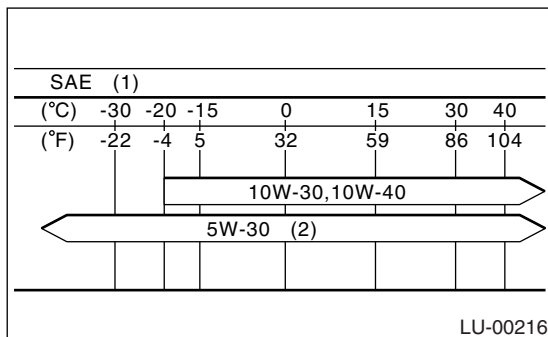
A: SPECIFICATIONS

Lubrication method			Forced lubrication	
Oil pump	Pump type		Trochoid type	
	Number of teeth	Inner rotor	9	
		Outer rotor	10	
	Outer rotor diameter × thickness		78 × 7 mm (3.07 × 0.28 in)	
	Tip clearance between inner and outer rotor		STANDARD	0.04 — 0.14 mm (0.0016 — 0.0055 in)
			LIMIT	0.18 mm (0.0071 in)
	Side clearance between inner rotor and pump case		STANDARD	0.02 — 0.07 mm (0.0008 — 0.0028 in)
			LIMIT	0.12 mm (0.0047 in)
	Case clearance between outer rotor and pump case		STANDARD	0.10 — 0.175 mm (0.0039 — 0.0069 in)
			LIMIT	0.20 mm (0.0079 in)
Capacity at 80°C (176°F)	600 rpm	- Discharge pressure	98 kPa (1.0 kg/cm ² , 14 psi)	
		- Discharge quantity	3.2 ℓ (3.4 US qt, 2.8 Imp qt)/min.	
	5,000 rpm	- Discharge pressure	294 kPa (3.0 kg/cm ² , 43 psi)	
		- Discharge quantity	32.6 ℓ (34.5 US qt, 28.7 Imp qt)/min.	
Relief valve operation pressure			490 kPa (5.0 kg/cm ² , 71 psi)	
Oil filter	Type		Type of full-flow with 3 papers	
	Filtration area		910 cm ² (141 sq in)	
	By-pass valve opening pressure		157 kPa (1.6 kg/cm ² , 23 psi)	
	Outer diameter × width		80 × 75 mm (3.15 × 2.95 in)	
	Installation screw type		M 20 × 1.5	
Oil pressure switch	Type		Type of contact point in oil	
	Working voltage — wattage		12 V — 3.4 W or less	
	Warning light activation pressure		14.7 kPa (0.15 kg/cm ² , 2.1 psi)	
	Proof pressure		More than 981 kPa (10 kg/cm ² , 142 psi)	
Oil capacity (when replacing oil)			Approx. 4.0 ℓ (4.2 US qt, 3.5 Imp qt)	

Recommended oil:

API classification SL with the words “Energy Conserving” (if the oil with SL grade cannot be obtained, it is okay to use SJ grade oil).

ILSAC GF-3 or the equivalent which is indicated on the container with the new API certification mark (Star burst mark).

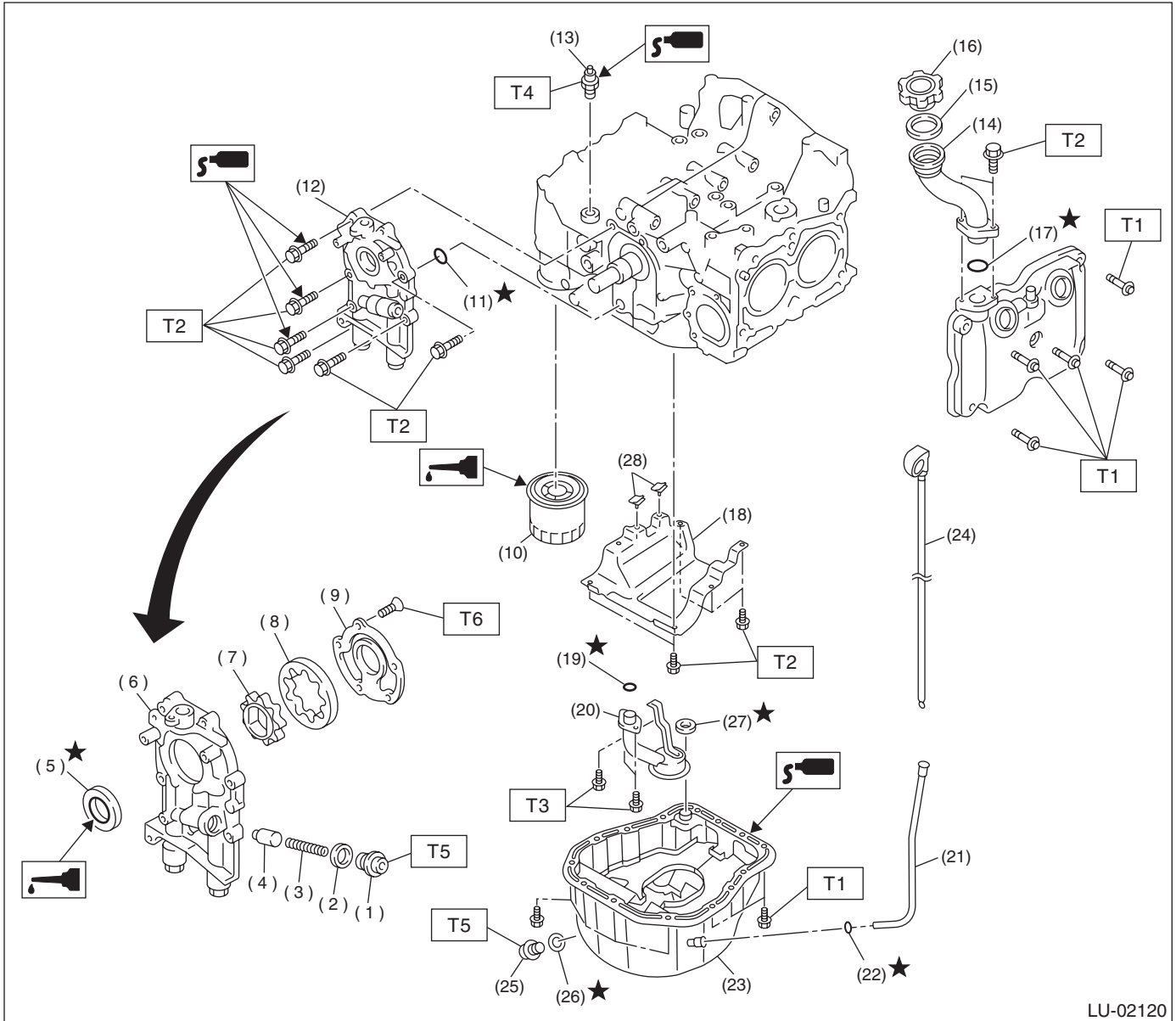


- (1) SAE Viscosity No. and Applicable Temperature
- (2) PREFERRED

NOTE:

If vehicle is used in desert areas with very high temperatures or for other heavy duty applications, the following viscosity oils may be used: ILSAC classification: GF-3 or API classification: SL
SAE Viscosity No.: 30, 40, 10W-50, 20W-40, 20W-50.

B: COMPONENT



LU-02120

- | | | |
|-------------------------|----------------------------|-------------------|
| (1) Plug | (13) Oil pressure switch | (25) Drain plug |
| (2) Gasket | (14) Oil filler duct | (26) Metal gasket |
| (3) Relief valve spring | (15) O-ring | (27) Gasket |
| (4) Relief valve | (16) Oil filler cap | (28) Seal |
| (5) Oil seal | (17) O-ring | |
| (6) Oil pump case | (18) Baffle plate | |
| (7) Inner rotor | (19) O-ring | |
| (8) Outer rotor | (20) Oil strainer | |
| (9) Oil pump cover | (21) Oil level gauge guide | |
| (10) Oil filter | (22) O-ring | |
| (11) O-ring | (23) Oil pan | |
| (12) Oil pump ASSY | (24) Oil level gauge | |

Tightening torque: N·m (kgf·m, ft·lb)

T1: 5 (0.5, 3.6)

T2: 6.4 (0.65, 4.7)

T3: 10 (1.0, 7.2)

T4: 25 (2.5, 18.1)

T5: 44 (4.5, 33)

T6: 5.4 (0.55, 4.0)

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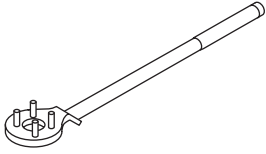
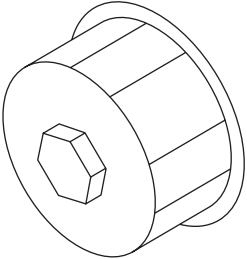
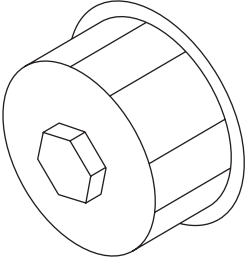
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C: CAUTION

- Wear working clothing, including a cap, protective goggles, and protective shoes during operation.
- Remove dirt and corrosion before removal, installation or disassembly.
- Keep the disassembled parts in order and protect them from dust or dirt.
- Before removal, installation or disassembly, be sure to clarify the failure. Avoid unnecessary removal, installation, disassembly, and replacement.

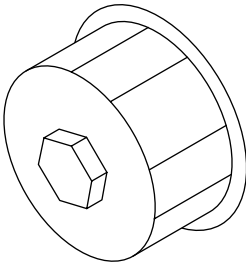
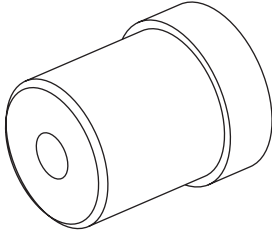
- Be careful not to burn your hands, because each part in the vehicle is hot after running.
- Be sure to tighten fasteners including bolts and nuts to the specified torque.
- Place shop jacks or safety stands at the specified points.
- Before disconnecting electrical connectors of sensors or units, be sure to disconnect ground cable from battery.

D: PREPARATION TOOL

ILLUSTRATION	TOOL NUMBER	DESCRIPTION	REMARKS
 ST-499977100	499977100	CRANKSHAFT PULLEY WRENCH	Used for stopping rotation of crankshaft pulley when loosening and tightening crankshaft pulley bolt.
 ST-498547000	498547000 [Outer diameter 80 mm (3.15 in) for oil filter]	OIL FILTER WRENCH	Used for removing and installing oil filter.
 ST18332AA000	18332AA000 [Outer diameter 68 mm (2.68 in) for oil filter]	OIL FILTER WRENCH	Used for removing and installing oil filter.

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ILLUSTRATION	TOOL NUMBER	DESCRIPTION	REMARKS
 <p data-bbox="318 519 472 544">ST18332AA010</p>	18332AA010 [Outer diameter 65 mm (2.56 in) for oil filter]	OIL FILTER WRENCH	Used for removing and installing oil filter.
 <p data-bbox="334 880 472 906">ST-499587100</p>	499587100	OIL SEAL INSTALLER	Used for installing oil pump oil seal.